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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/007,493	11/13/2001	Hiraku Yamamoto	214455	2264

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EXAMINER

EGAN, BRIAN P

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 12/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/007,493

Applicant(s)

YAMAMOTO ET AL.

Examiner

Brian P. Egan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7. 6) ☐ Other:

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4 and 6-8 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Applicant's admitted prior art relative to the use of Japan Polyolefins Co. J-REX LL-type and Harmorex LL-type resins (see *Polymer Processing Technology*, reprinted from [http://www.jpo.co.jp/en/technology/polymer\\_processing4.html](http://www.jpo.co.jp/en/technology/polymer_processing4.html)).

The Applicants on pages 20-21 of the specification demonstrate the use of a linear ethylene resin (specifically ethylene-1-hexene and ethylene 1-octene copolymers made by Japan Polyolefins Co., LTD. under the product names J-REX LL and Harmorex LL) in forming the claimed end product. It was notoriously well known in the art at the time Applicant's invention was made to use J-REX LL-type and Harmorex LL-type resins to produce release paper as evidenced by *Polymer Processing Technology* (see p. 1). Thus, the Applicant's claimed invention is anticipated by Japan Polyolefins Co.'s disclosure in *Polymer Processing Technology*. Although *Polymer Processing Technology* does not explicitly state that the resin exhibits a specific spin-spin relaxation time or bearing ration, these limitations are inherently met.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adamko et al. (#5,948,517) in view of JP 11-060634 (hereinafter JP '634) and Freedman (#4,713,273).

Adamko et al. teach a silicone free release film along with an adhesive layer (see Abstract; Col. 3, lines 4-6) wherein the release liner comprises an ethylene/alpha olefin copolymer (Col. 2, lines 46-48). The alpha olefin component of the copolymer is an alpha olefin having between 3 and 10 carbon atoms – specifically selected from the group consisting of butene, hexene, and octene (Col. 2, lines 49-51) – and is in the amount of 0.01 to 10% of the copolymer (Col. 4, lines 61-62). Adamko et al. teach that the linear low density polyethylene is a metallocene catalyzed polymer that is highly amorphous and low in crystallinity (Col. 4, lines 30-34). Adamko et al. teach that by using the metallocene catalyst, the compositional distribution throughout the liner is uniform (Col. 4, lines 15-21). Given that the compositional distribution is uniform, the hardness of the film would be consistent throughout the liner and the difference in hardness between the surface and the inner portions of the liner would be minimal, if not zero – thereby proving a film with a low bearing ratio.

Although Adamko et al. do not explicitly teach the spin-spin relaxation time of the amorphous region of the ethylene or the ratio of the amorphous region, the spin-spin relaxation time and ratio of the amorphous region are directly related to the material composition and the

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physical structure of the material (i.e., crystalline vs. amorphous as well as the physical orientation (which is effected by the catalyst)). Thus, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have modified the composition and physical structure of the copolymer detailed in Adamko et al. depending on the desired end product, in turn modifying the spin-spin relaxation time and amorphous region ratio such that it exhibits spin-spin relaxation times and amorphous region ratios as claimed by the Applicant. Furthermore, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have directly modified the spin-spin relaxation time and the amorphous region ratio since it is notoriously well known in the art to modify the spin-spin relaxation time as well as the ratio of the amorphous region as evidenced by JP '634. JP '634 teaches the use of a laminate film comprising an ethylene/alpha olefin copolymer resin wherein the alpha olefin has between 3 and 20 carbon atoms and is selected from the group consisting of butene, hexene, and octene (see Abstract; p. 2, paragraph [0007]). JP '634 teaches a copolymer that exhibits a melt index value between 0.001 and 1,000 g/min, a density between 0.9 and 0.985 grams per cubic centimeter, and a ratio of the spin-spin relaxation time of the amorphous portion of 7.2 or less (see Abstract). JP '634 teach the use of an ethylene polymer substrate with the aforementioned properties for the purpose of providing a substrate comprising a constrained amorphous part wherein the substrate exhibits improved moldability (see Abstract). It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have combined the teachings of Adamko et al. and JP '634 since each of the aforementioned references are analogous insofar as being directed at ethylene polymer substrates with controlled

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crystalline and amorphous portions that are controlled in order to exhibit the desired physical properties.

Therefore, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have modified the spin-spin relaxation time and amorphous region ratio of Adamko et al. either individually, or in combination with the teachings of JP '634, in order to provide an ethylene polymer substrate exhibiting improved moldability and physical properties. Furthermore, it would have been obvious to one of ordinary skill in the art to modify any of the aforementioned properties exhibited by the polymers in Adamko et al. and JP '634 such that the polymer exhibits the spin-spin relaxation time and ratio of the amorphous region as claimed by the Applicant, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Although Adamko et al. implicitly teach a liner with a low bearing ratio since the compositional distribution of the substrate is uniform, it would also have been obvious to one of ordinary skill in the art to modify the surface roughness of the substrate, thereby modifying the bearing ratio of the substrate, based on the teachings of Freedman.

Freedman teaches a release liner for a pressure sensitive adhesive sheet wherein the surface roughness of the release liner may be modified depending on the desired end product. Although Freedman does not explicitly state the bearing ratio of the release liner, the bearing ratio is in direct correlation with the surface roughness of the liner as well as the inner physical structure of the substrate (i.e., uniform hardness correlates to a low bearing ratio while extremely differing properties correlate to a high bearing ratio (as detailed on p.5 of Applicant's response,

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paper no. 8)). Specifically, Freedman teaches that a release liner with a surface roughness of at least 10 Sheffield units is provided (Col. 7, lines 6-14). Thus, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have modified a release liner such that it exhibits a desired surface roughness. Freedman teaches the use of a release liner with a specific surface roughness along with an adhesive layer for the purpose of imparting the surface roughness to the adhesive layer during the formation process, ultimately yielding an adhesive that is free from problems associated with air entrapment during application of the adhesive to a surface (Col. 6, line 62 to Col. 7, line 5). It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have combined the teachings of Adamko et al. and Freedman since each of the aforementioned references are analogous insofar as being directed at release liners with optimal physical properties for separation from an adhesive layer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have modified Adamko et al. to include a specific surface roughness imparted upon the liner as taught by Freedman in order to impart the surface roughness to the adhesive layer during the formation process, ultimately yielding a release liner whose bearing ratio is low (and within the Applicant's claimed range) based on the fact that the liner will be both uniform in compositional distribution and will provide a surface that is modifiable such that the outer surface reacts to an applied force in an equivalent manner to the reaction exhibited by the inner region upon application of a force.

5. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art relative to the use of Japan Polyolefins Co. J-REX LL-type and

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Harmorex LL-type resins (see *Polymer Processing Technology*, reprinted from [http://www.jpo.co.jp/en/technology/polymer\\_processing4.html](http://www.jpo.co.jp/en/technology/polymer_processing4.html)) in view of WO 99/14281.

*Polymer Process Technology* teaches the use of a liner as detailed above. The aforementioned prior art fails to teach the use of the liner in combination with an adhesive.

It is notoriously well known in the art, however, to use polyethylene/alpha olefin copolymer release sheets for pressure sensitive adhesive release sheets as detailed by WO '281 (see Abstract; p.9, lines 9-27). WO '281 teaches the use of a release liner for a pressure sensitive adhesive for the purpose of providing a protective liner for an adhesive that is thermally stable, tear resistant, and exhibits substantially no shrinking or buckling when exposed to varying temperatures (p. 14, lines 13-16). Thus, it would have been obvious through routine experimentation to one of ordinary skill in the art at the time Applicant's invention was made to have used a polyethylene/alpha olefin copolymer release liner for a pressure sensitive adhesive for the purpose of providing a protective liner for the adhesive that is thermally stable, tear resistant, and exhibits substantially no shrinking or buckling when exposed to varying temperatures as taught by WO '281).

Therefore, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have modified the aforementioned prior art by providing an adhesive layer along with the polyethylene/alpha olefin copolymer release liner as taught by WO '281 in order to provide a protective liner for an adhesive that is thermally stable, tear resistant, and exhibits substantially no shrinking or buckling when exposed to varying temperatures.



*Response to Arguments*

6. The Examiner notes that the claim objections and 35 U.S.C. 112, second paragraph rejection from the previous office action have been withdrawn pursuant to the Applicant's amended claims.

7. Applicant's arguments with regards to the 35 U.S.C. 102(b) rejection of claims 1-4 and 6-8 from the previous office action has been considered but is not persuasive.

The Applicant contends that the J-REX LL-type and Harmorex LL-type resin sheets fail to comprise an ethylene polymer outer layer and instead teach ethylene layers coated on one side with a paper substrate and coated on the opposite side with silicone. The Applicant's cite the Adherence Handbook (published Oct. 12, 1995) to support this proposition. The Examiner respectfully disagrees with this assumption. First, the reference cited is not directed at Harmorex or J-REX type resin sheets. The fact that it may have been known to provide release papers comprising an ethylene layer between a silicone layer and a paper layer does not preclude J-REX and Harmorex release papers from being free of silicone. Second, as stated in *Polymer Processing Technology* (see p. 1), "a lot of lamination products as... release paper... are manufactured by extrusion coating/lamination. Melting resin is extruded from narrow slit as thin film, and coated on a substrate between chilled metal roll and chilled rubber roll." *Polymer Processing Technology* therefore only teaches that the (ethylene polymer) resin is coated onto a single substrate to form a release paper – the use of a silicone layer is not suggested nor required.

8. Applicant's arguments with respect to the 35 U.S.C. 103(a) rejections from the previous office action have been considered but are moot in view of the new ground(s) of rejection.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian P. Egan whose telephone number is 703-305-3144. The examiner can normally be reached on M-F, 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Y. Pyon can be reached on 703-308-4251. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

*Brian P Egan*  
BPE 12/4/03

*Harold Pyon*  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER  
1772 12/9/03